REMARKS/ARGUMENTS

Election/Restriction

Claims 12 through 16 are elected without traverse, and claims 1-11 are withdrawn preserving the right to resubmit them in a divisional application.

Specification

The reference noted at paragraph 24 of the application is incorporated by reference to teach making a shielded ribbon cable. While it has not been submitted as part of an IDS, the Examiner's attention is directed to paragraph 10 which describes this reference as part of the background of the invention. It is understood that as part of the specification, the Examiner has considered this description of the prior art in evaluating the invention for patentability.

Drawings

Element 43 of the drawings identifies the pleats in the shields and a reference number 43 has accordingly been added to the specification. The addition of this number to identify existing description is not believed to introduce new matter.

Claim Rejections--35 U.S.C §103.

The present invention concerns a wiring system for a PET scanner using a novel cable connecting particular components of the PET scanner and having a specified wiring topology. In particular, the cable must communicate event detection pulses EDP from detector modules to signal processing circuitry so that the time of occurrence and energy of the level of the EDP is preserved. See generally, paragraphs 9, 19, and 21 of the application. Further, the cable must provide a ribbon conductor structure with two isolated coaxial shields. See generally, paragraphs 23 through 25. Finally, the cable must be connected so that conductors of the ribbon carrying EDP signals alternate with conductors providing signal returns. The first coaxial shield must be connected to the signal return and the second coaxial shield must be connected to earth ground. Each of these features is required of independent claim 12 on which all other claims are dependent.

The references alone or in combination fail to teach these elements. The Yamakawa patent teaches a PET scanner but provides little information on how signals are communicated. At col. 9, lines 60-65, Yamakawa indicates that the detector modules 61 and

62 have a "signal wiring pattern" for supplying output detection signals to the signal processor 69. A reasonable interpretation of this language is that the signals are communicated on printed circuit-type traces with the shielding provided by copper plate 66. The word "cable" is nowhere contained in the description of the invention in Yamakawa, nor is there any suggestion that a cabling system might provide the suitable wiring density.

The Sakurai patent describes a ribbon-type cable with a single shield. There is no suggestion that it is suitable for use with a PET-type machine in communicating EDP signals, nor that a separate shield around the first shield and independent from the first shield should be used.

The second shield that is missing from Sakurai is apparently ignored under the logic that if one of ordinary skill in the art knew they wanted to make a second concentric shield, then they would know how to fabricate the shield ("duplication of the essential working parts of a device indicates only routine skill in the art"). This formulation confuses enablement with anticipation. In order to meet the burden of §103, the Examiner must demonstrate that a person of ordinary skill in the art would know or be led to add a second redundant shield to a flexible ribbon cable, not that they would know how to add such a shield. Applicant asserts that one of ordinary skill in the art, requiring additional shielding, would normally make a single shield thicker and thus more conductive. This position is supported by the other art cited by the Examiner, none of which shows dual concentric and redundant shields in any context. Applicant can find no support in *St. Regis Paper Company vs. Beamis Company*, 549 F.2d 833 for the proposition that duplicated elements are per se obvious. It is noted that analysis of *St. Regis Paper Company* requiring synergy between the elements of an invention is no longer good law.

Finally, there is no teaching in any of the cited references for the claim elements that require alternate signal conductors in the ribbon cable to conduct the signal and alternate conductors to conduct the signal return, and that the inner shield be connected to the signal return while the outer shield be connected to a separate earth ground.

Thus, the combination proposed by the Examiner, even if proper, is insufficient to teach the elements of the claim.

In addition to the insufficiency of the combination of references proposed by the Examiner to teach the limitations of the claims, Applicant believes the combination is

improper. The Examiner must find a teaching suggestion in the art or general knowledge for making the combination. The Applicant respectfully traverses the idea that the cable disposed by Sakurai would be obvious to use in the PET scanner taught by Yawakama when in fact the state of inventive knowledge indicated by Yawakama, presumably higher than that of one of ordinary skill in the art, teaches away from the use of a cable requiring instead a rather large copper shield. Even assuming that a teaching suggestion for use of the shielded cable of this type to satisfy the wiring requirements of a PET device were known, the Examiner is obligated to point out a teaching suggestion for the addition of a secondary shield on Sakurai not taught or suggested by either the Yawakama or Sakurai patents, and further to find a teaching suggestion for the separate grounding system and alternate signal conducting patterns used by the present invention. Given the environment of a PET scanner and the requirement of high accuracy both in amplitude and timing of the transmission of the signals, Applicant asserts that considerable experimentation would be required to establish that cables of this type would provide the necessary signal fidelity needed by a PET system.

With respect to claim 14, the Examiner misrepresents the claim with respect to obviousness. While it might be obvious to one of ordinary skill in the art to make a shield out of metal, (e.g., wire), the claim requires dual concentric shields out of metal foil. Given the necessarily greater radius required, Applicant submits that it is not obvious or known in the art to provide such shields using metal foil.

With respect to claim 15, Plumber does not remedy the above deficiencies. Further, the fact that Plumber shows a longitudinal pleating teaches away from the sort of pleating necessary to allow a flexible first and second conforming electrical shield per the present invention.

With respect to claim 16, Applicant does not contend nor claim that a connector attached to a ribbon cable is novel. However, the use of a connector to attach a dual shielding flexible cable is neither known nor taught by any of the art or references cited by the Examiner.

In view of these comments, it is believed that claims 12 through 16 are now in condition for allowance and allowance is respectfully requested.

Respectfully submitted,

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